

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
1650 Arch Street
Philadelphia, Pennsylvania 19103-2029

May 27, 2004

Mr. Ron Gahagan
American Household Inc.
2381 Executive Center Drive
Boca Raton, Florida 33431



SOMS DocID 2050641

RE: BALLY GROUND WATER CONTAMINATION SUPERFUND SITE
FOCUSED FEASIBILITY STUDY WORKPLAN

Dear Mr. Gahagan:

The United States Environmental Protection Agency (EPA) is in receipt of the revised Focused Feasibility Study Workplan ("workplan"), dated May 20, 2004, provided by American Household Inc. (AHI). This workplan was prepared by Arcadis G&M, Inc. (Arcadis), on behalf of AHI, to address 1,4-dioxane in the ground water at the Bally Ground Water Contamination Superfund Site ("the Site").

The purpose of this letter is to approve the revised workplan. The following comments pertain to the workplan, and to the resolution of the 1,4-dioxane issue at the Site in general:

Well warranty period/public water system redundancy

These two issues were discussed in the February 26, 2004 and April 21, 2004 letters from EPA to AHI, which documented comments regarding the workplan. These issues are of concern to the Borough of Bally ("Bally"), and EPA understands that AHI and Bally are currently attempting to resolve these issues in a mutually acceptable manner. EPA will review the resolution of these issues to determine if agreements reached between AHI and Bally will be protective of human health and the environment, and will achieve the first remedial action objective listed in the ROD, "Prevention of Ingestion of Contaminated Groundwater." Pending EPA review and approval, the manner in which these two issues are resolved will be incorporated into a selected remedy for 1,4-dioxane at the Site, and documented in an appropriate EPA decision document. EPA anticipates that the focused feasibility study will include a discussion relating to these issues.

This approval does not constitute a stated or implied agreement with every statement of fact, characterization, opinion, or conclusion contained in the workplan, or other documents related to that report. Statements made by Arcadis on behalf of AHI do not necessarily reflect the opinions or conclusions of EPA. The absence of a response or comment by EPA with respect to any particular statement contained in the workplan or

AR300235



Mr. Mitch Cron
United States Environmental Protection Agency Region III
Hazardous Site Cleanup Division
1650 Arch Street
Philadelphia, PA 19103-2029

Subject:

Focused Feasibility Study Work Plan, Bally Groundwater Contamination Superfund Site, Bally Borough, Berks County, Pennsylvania

ARCADIS Project No.: NP000592

Dear Mr. Cron:

ARCADIS, on behalf of Sunbeam Products, Inc. (Sunbeam), has prepared the following Focused Feasibility Study (FFS) Work Plan for the Bally Groundwater Contamination Superfund Site. This Work Plan has been prepared in accordance with the requirements presented in the Safe Drinking Water Act (SDWA) Emergency Administrative Order on Consent (AOC) executed by the United States Environmental Protection Agency (USEPA) and Sunbeam on September 30, 2003 which concerns the 1,4-dioxane in the groundwater at the Site.

This Work Plan consists of three sections: Purpose and Scope, Proposed FFS Contents, and Description of Data Analysis and Field Activities. The elements and contents of this Work Plan are consistent with the requirements presented in Subpart F of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) (40 CFR Part 300.430) and USEPA's Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA (USEPA, 1988).

Purpose and Scope of FFS Work Plan

This Work Plan describes the proposed data gathering, evaluation and decision-making processes that will be employed during development of the FFS. As required by the SDWA AOC referenced above, the FFS will explore the following options:

- Installation of a new municipal supply well for the Bally Public Water System (PWS), and,
- Treatment of 1,4-dioxane at existing Municipal Well No. 3.

The specific activities that will be addressed in the FFS include the following:

- Identification of Applicable or Relevant and Appropriate Requirements (ARARs), To Be Considered (TBC) standards and guidance, and Remedial Action Objectives (RAOs);
- Identification of potential new water supply well locations;

ARCADIS PROJECT NO.:
NP000592
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ENVIRONMENTAL

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May 20, 2004

Contact:
Michael Bedard

- Summary and evaluation of recent monitoring data for site-related constituents of concern, including 1,4-dioxane;
- Identification of appropriate treatment technologies and processes for treatment of 1,4-dioxane in Municipal Well No. 3;
- Screening of applicable treatment technologies and processes for treatment of 1,4-dioxane in Municipal Well No. 3 based on effectiveness, implementability, and cost;
- Investigation of potential water supply well locations and analysis of the applicable treatment technologies and processes for treatment of 1,4-dioxane in Municipal Well No. 3, based on the following nine criteria:
 - Overall protection of human health and the environment;
 - Compliance with ARARs;
 - Long-term effectiveness and permanence;
 - Reduction of toxicity, mobility or volume through treatment;
 - Short-term effectiveness;
 - Implementability;
 - Cost;
 - State acceptance; and,
 - Community acceptance.
- Development of remedial alternatives;
- Comparison of the remedial alternatives; and,
- Recommendation of remedial alternative.

Proposed FFS Contents

The proposed Table of Contents for the FFS is presented below. The final configuration of the FFS may vary from what is presented below, but the general intent and report contents are expected to remain consistent with the information presented below.

<u>Section</u>	<u>Title</u>
1.0	Introduction and Site Characterization
2.0	ARAR, TBC and Remedial Action Objective Identification
3.0	Remedial Technologies, Technology Screening and Development of Remedial Alternatives

4.0	Detailed Analysis of Alternatives
5.0	Recommended Alternative
6.0	References

The data collection activities and decision-making process associated with development of each of the proposed report sections are described in the following section of this Work Plan.

Description of Data Collection and Other FFS Preparation Activities

Data collection, evaluation and other FFS preparation activities are described below, and are organized/numbered by the proposed sections of the FFS.

1.0 Introduction and Site Characterization

This section will describe the purpose and scope of the FFS. Site history, geologic setting, a summary of recent monitoring data and other relevant background information will also be included. The summary of recent monitoring data will include an evaluation of data trends, seasonal impacts and potential variables such as sample collection and analysis methods.

2.0 ARAR, TBC and RAO Identification

ARARs, TBC's and RAOs will be identified in this section. The following categories will be considered during identification of potential ARARs and TBC's:

- Federal requirements – applicable, or potentially relevant and appropriate;
- Pennsylvania state requirements – applicable, or potentially relevant and appropriate;
- Local requirements - applicable, or potentially relevant and appropriate;
- Federal criteria, advisories and guidance documents to be considered (TBC's);
- Pennsylvania state criteria, advisories and guidance documents to be considered (TBC's);
- Local criteria to be considered (TBC's);

Other categories for regional or other entities may be identified during preparation of the FFS.

The AOC referenced above likely will be considered an ARAR for the FFS. The FFS will take into consideration any new risk or health data that becomes available which alters the technical basis for the 1,4-dioxane drinking water standard discussed in the AOC referenced above. The FFS also will consider the feasibility of achieving the 1,4-dioxane treatment concentrations described in the AOC referenced above. The FFS will consider the potential effects of such information on ARARs.

RAOs will be identified during preparation of the FFS. The RAOs will focus on implementation of remedial actions to address 1,4-dioxane that will ensure protection of human health and the environment.

3.0 Remedial Technologies, Technology Screening and Development of Remedial Alternatives

Appropriate technologies will be selected and screened in order to develop a focused list of remedial alternatives.

Remedial Technologies and Technology Screening

Remedial technologies are not applicable for the installation of a new municipal supply well, as this activity is not expected to include treatment of extracted water beyond the chlorination that is typically conducted for water supply systems.

Discussion of remedial technologies for treatment of water from Municipal Well No. 3 will focus on advanced oxidation processes (AOPs) such as gaseous ozonation and ultra-violet light hydrogen peroxide treatment.

Development of Remedial Alternatives

Two remedial alternatives, based on the remedial options outlined in the SDWA AOC, are likely to be developed. The likely alternatives are as follows:

Alternative 1:

Installation of New Municipal Supply Well for the Bally PWS, Continued Operation of Existing Municipal Well No. 3 Groundwater Treatment System with Discharge to West Branch Perkiomen Creek (West Branch); and,

Alternative 2:

Continued Operation of Existing Municipal Well No. 3 Groundwater Treatment System, Additional Treatment of 1,4-Dioxane at Well No. 3, Continued Discharge of Treated Water to Bally PWS and Adjacent Unnamed Tributary.

4.0 Detailed Analysis of Alternatives

The detailed analysis of alternatives will be based upon information collected prior to FFS development, as well as the nine evaluation criteria listed above. Specific factors and information that will be used during the alternatives analysis process are provided below. Permits that are anticipated to be necessary for these alternatives are

identified below; some of these permits will be critical factors in evaluation of the feasibility of the remedial alternatives.

Installation of New Municipal Supply Well

Information on local and regional hydrogeology and land use will be used to evaluate potential new supply well locations. This information will include the following:

- Area- and site-wide geology and hydrology;
- Water use quality information;
- Fracture trace analyses;
- Proximity to groundwater contamination sites such as the Bally Site and the Crossley Farms Superfund Site; and,
- Land use and zoning.

More detailed information on the technical approach for location of a new municipal supply well is presented in Attachment 1 to this Work Plan.

Information obtained from activities conducted as of the time of FFS preparation will be included in the FFS. These activities likely will include:

- Test borehole drilling;
- Test well installation;
- Aquifer pumping test(s);
- Water quality analyses;
- Evaluation of criteria such as water quality (risk-based allowable consumption concentration for 1,4-dioxane, PADEP New Source Sampling Requirements and PADEP Maximum Contaminant Levels (MCLs) for Primary and Secondary Contaminants) and potential well yield;
- Evaluation of continued pumping and treatment at Municipal Well No. 3, and the potential for future increases in the horizontal or vertical extents of the existing groundwater plume;
- Evaluation of the potential impact of future potable and non-potable water supply wells in the vicinity of a new municipal supply well, and the potential roles of regulatory entities such as Washington Township and the Delaware River Basin Commission (DRBC);
- Evaluation of mechanical system and piping design issues;
- State and regional regulatory permitting;
- Engineering and administrative considerations regarding Bally water distribution system; and,
- Access agreement negotiation.

The information obtained through execution of these activities will be critical to the analysis of the feasibility of installing a new municipal supply well in the vicinity of Bally Borough.

Continued Operation of Existing Groundwater Treatment System with Discharge to West Branch

If the new supply well alternative is selected and successfully executed, the existing groundwater treatment system would likely continue to operate, and the treated water would be discharged to a new outfall location at the West Branch. Potential discharge pipeline alignments, and their physical and administrative constraints, will be described in the FFS.

Some of the infrastructure, permits and approvals anticipated for a new pipeline and outfall are as follows:

- Pipeline, discharge pump, controls and outfall structure;
- Pennsylvania Department of Environmental Protection (PADEP) approval of a National Pollutant Discharge Elimination System (NPDES) permit for the treatment system effluent;
- PADEP Wetlands and Water Encroachment permits;
- Approval of a Soil Erosion and Sediment Control Plan from the Berks County Conservation District;
- Access agreement negotiation; and,
- Approval from Bally Borough, Washington Township and or the Pennsylvania Department of Transportation for construction of the pipeline within public road rights-of-way and other public property.

Consideration of whether a limited evaluation of the potential ecological impacts (or lack thereof) of groundwater discharge to the West Branch is appropriate. The range of 1,4-dioxane concentrations typically observed in the effluent of the existing treatment system (typically <0.045 mg/L) is well below the level of concern for ecological receptors. Detailed background information on the limited potential for ecological impacts will be included in the FFS.

Continued Operation of Existing Municipal Well No. 3 Groundwater Treatment System with Additional Treatment for 1,4-Dioxane

Bench-scale testing for AOPs such as gaseous ozonation and ultra-violet light/hydrogen peroxide treatment has been conducted on samples of water from Bally Municipal Well No. 3. The results of this testing, as well as a vendor operator survey, were described in the August 20, 2003 ARCADIS letter to USEPA. The FFS will include the information obtained during preparation of this evaluation, conclusions from the evaluation letter, and any other relevant information obtained since preparation of the letter.

Anticipated infrastructure and permitting considerations include the following:

- Construction of additional treatment infrastructure such as electrical system upgrades, mechanical system modifications, equipment building additions, and site upgrades;
- Modification and/or renewal of the existing NPDES, Water Supply and air quality permits through PADEP due to changes in the treatment system; and,
- Building permits required from the Borough of Bally.

Other considerations in the FFS evaluation will include:

- Treatment process by-products and the associated regulatory requirements and potential control options;
- Technology limitations and potential process control issues;
- Limitations of treatment technologies to consistently achieve treatment objectives; and
- Ability of technologies to reach regulatory standards and/or goals.

Continued Discharge of Treated Water to Bally PWS and Adjacent Unnamed Tributary

If groundwater is treated for 1,4-dioxane, excess water that is not discharged to the Bally PWS likely will be discharged to the unnamed tributary next to Municipal Well No. 3 in the same manner as such discharges presently occur. Continued discharge of treated water to the unnamed tributary would require modification of the existing NPDES permit for the treatment system through PADEP. Existing infrastructure associated with the existing outfall location would continue to be used.

5.0 Recommended Alternative

The basis for recommendation of one alternative will be made in this section.

6.0 References

Documents referenced in the FFS will be listed in this section.

Attachment 2 to this Work Plan includes comments received from USEPA on the draft FFS Work Plan (February 26, 2004), Sunbeam ARCADIS responses to those comments (March 12, 2004), and additional comments received from USEPA on April 21, 2004. Attachment 3 presents a schedule for field activities and deliverables associated with preparation and finalization of the FFS.

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Mr. Mitch Cron
May 20, 2004

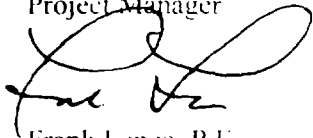
We trust that this Work Plan adequately describes the proposed activities for preparation of the FFS. If you have any questions or comments regarding this Work Plan, please contact Michael Bedard at (267) 685-1821.

Sincerely,

ARCADIS G&M, Inc.



Michael F. Bedard, P.E.
Project Manager



Frank Lenzo, P.E.
Project Director/Vice President

Attachments

Copies

Roger Reinhart, USEPA
Asuquo Effiong, PADEP
Susan Werner, PADEP
Toni Hemerka, Bally Borough
Ron Gahagan, American Household, Inc.

Technical Approach for Location of New Municipal Supply Well

1. Define Project/Study Objectives
2. Hydrogeologic Assessment

1. Define Project/Study Objectives

A. Study area

B. Quantity desired

C. Constraints

1. Proximity to existing Bally Public Water Supply distribution system
2. Potential objectors
3. Environmental quality issues
4. Property access considerations
5. Legal considerations

2. Hydrogeologic Assessment

A. Objectives

1. Assess possible areas for future development
2. Assess potential test well locations: advantages, disadvantages, and risks
3. Develop the elements of a field exploration program, specifically scope objectives cost

B. Major Considerations

1. Hydrogeologic conditions
2. Water-quality considerations: groundwater contamination incidents and sources
3. Past, present, and projected future land uses and associated groundwater quality impacts
4. Regulatory constraints

1. Hydrogeologic conditions

a. Define principal aquifers in study area

- i. Existing groundwater use in and near study area (well and pumpage inventory, individual well yields)
- ii. Condition of major aquifers (historic water-level data, pumpage conditions)
- iii. Bedrock aquifers (air photo analysis, identification of major fractures and lineations)

b. Data sources

- i. Municipal records
- ii. Local drillers
- iii. USGS
- iv. State and county agencies
- v. Consultants reports
- vi. Field data

2. Water-quality considerations: groundwater contamination incidents and sources

a. Review historic groundwater quality data

- i. Define baseline (pre-development) quality, if possible
- ii. Changes in common water-quality parameters helpful, e.g., nitrates, chlorides, hardness, TDS

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- iii. Assess impact of land use urbanization development on water quality, if possible
- b. Inventory known and suspected sources of groundwater contamination
 - i. Obvious and non-obvious sources
 - ii. Nearest known sources of groundwater contamination
 - iii. Overlay concept
 - iv. Contamination sources inventory
 - v. Major types include known groundwater contamination sites such as Bally Site and Crossley Farms Site, sewers, gas stations, underground tanks, septic systems, industries, selected commercial establishments, landfills, workshops, salt piles, etc.
- c. Primary data sources
 - i. State regulatory agency - PADEP
 - ii. USEPA
 - iii. Database search service
 - iv. Field data
- 3. Past, present, and projected future land uses and associated groundwater quality impacts
 - a. Past/present/future land uses
 - b. Zoning
 - c. Assessment of land use and associated groundwater quality impacts
 - d. Recharge area protection
 - i. Well head protection regulations
 - e. Data Sources
 - i. State regulatory agency - PADEP
 - ii. USEPA
 - iii. Local zoning ordinances
- 4. Regulatory constraints
 - a. Groundwater diversion permit regulations - potential objectors
 - b. Main focus of regulations
 - i. Water-level impacts
 - ii. Water-quality impacts
 - c. Possible water-level and water-quality impacts as a result of development
 - d. Applicable water-quality standards and guidelines

C. Major Factors in the Assessment

- 1. Status condition of major aquifers (water budget)
- 2. Land use
- 3. Groundwater quality
- 4. Groundwater diversion status
- 5. Overlay concept
- 6. Field data

D. Major Assessment Outputs

- 1. Definition of major/minor aquifers and groundwater use
- 2. Assessment of potential well sites and range of expected yields
- 3. Potential quality problems and source areas
- 4. Condition of major aquifers
- 5. Recommended field investigation program: elements schedule costs

Attachment 2



Infrastructure, buildings, environment, communications

Mr. Mitch Cron
United States Environmental Protection Agency, Region III
Hazardous Site Cleanup Division
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ENVIRONMENTAL

Subject:

**Response to USEPA Focused Feasibility Study Workplan Comments,
Bally Groundwater Contamination Superfund Site,
Bally Borough, Berks County, Pennsylvania**

ARCADIS Project No. NP000568.0002

Date:

12 March 2004

Contact:

Michael F. Bedard

Phone:

267-685-1800

Email:

mbedard@arcadis-us.com

ARCADIS G&M, Inc. (ARCADIS) is responding to the United States Environmental Protection Agency's (USEPA's) comments, dated February 26, 2004, to the Focused Feasibility Study (FFS) Workplan submitted on behalf of Sunbeam Products, Inc. (SPI) under the September 30, 2003 Administrative Order on Consent ("AOC"). Of course, American Household, Inc. (AHI) is the signatory to the Consent Decree with EPA. For purposes of this letter only, SPI and AHI are collectively referred to herein as the "PRP". Each comment is presented below in bold, followed by the response in italics.

1. General comment - Field activities. Include a schedule of field activities associated with the focused feasibility study (FFS). Such a schedule should include a list of field activities that remain to be performed, and approximate dates for the activities.

We concur with this comment and will incorporate the schedule in the FFS Workplan.

2. General comment - Deliverables. Include a list and schedule of key deliverables that AHI will submit to EPA related to the preparation and finalization of the FFS. Examples of key deliverables are Monthly Progress Reports, results of candidate well site test borings, results of aquifer pump tests, the NPDES application for the potential Well No. 3 outfall at the West Branch of the Perkiomen Creek, etc.

We concur with this comment and will incorporate the schedule in the FFS Workplan.

3. General Comment - Permits. A recurring issue at this Site is the desire of the Borough of Bally ("the Borough") to not be named as the permit-holder for permits associated with the environmental remediation at the Site. Examples include permits associated with air emissions from the current air-stripper system, the National Pollutant Discharge Elimination System (NPDES) permit, etc. AHI should indicate how this issue will be resolved, regardless of which remedial alternative is recommended to EPA.

The appropriate holder of the permits is governed by the regulations and regulatory guidance relative to any such permit. Generally this means the owner and operator of the permitted activity should be the permittee. To the extent the PRP is the owner and operator of a permitted activity, it will most likely be the permittee. We point out that if a new public water supply well is developed and turned over to the Borough of Bally, then the Borough will most likely be the permittee for the new well.

4. General Comment – System Redundancy. A recurring issue at this Site is the lack of "redundancy" associated with the Borough's public water system. Redundancy of the public water system existed prior to the Record of Decision (ROD) in the form of two municipal wells, and the usage of springs. The ROD indicated that redundancy of the system could be maintained via the use of Municipal Well Number 3 (equipped with a treatment system) and springs. Use of the springs ended in approximately 1988/1989. The issue of how to re-attain system redundancy should be addressed in the workplan. AHI should indicate how this issue will be resolved, regardless of which remedial alternative is recommended to EPA.

To the extent EPA has determined that the PRP is obligated to provide the Borough of Bally an additional redundant water supply; this is a legal conclusion that is both incorrect and inconsistent with previous EPA statements on this issue. For example, refer to the most recent "Five Year Review" by EPA with respect to this issue. Thus, a redundant water supply will not be addressed in the FFS Workplan. Also, the PRP reserves the right to provide further comment on this issue.

5. General Comment – Warranty period. In the event that AHI proposes Alternative 1 ("Installation of a new municipal supply well for the Bally Public Water System") as the preferred alternative in an FFS, the issue of an appropriate warranty period for the new well, acceptable to the Borough and AHI, will require resolution.

SPI and/or AHI's conveyance of the water supply well to the Borough raises numerous issues that need to be addressed. The warranty issue is one of those issues. This issue is being discussed by the PRP and the Borough.

6. Page 2, Purpose and Scope of FFS Work Plan. The FFS should include a summary of recent monitoring data for the Site-related contaminants of concern (including 1,4-dioxane). A review of the data should be conducted to determine the accuracy and reliability of the data for its intended use, and identification of any trends, seasonal effects, or other variables that might impact future remedial options.

We concur with the first sentence but need clarification from EPA on the meaning of the second sentence.

7. Page 2, Purpose and Scope of FFS Work Plan. The first proposed alternative, "Installation of a new municipal supply well for the Bally Public Water System" should be expanded to include an evaluation of the continued pumping and treatment at existing Municipal Well No. 3, such that the current extent of the Site-related ground water contamination plume does not increase in either the horizontal or vertical extent. Options for more effective (both in terms of technology and cost) continued pumping and treatment may be evaluated and included in the FFS analysis. In addition, treated water discharge volume and contaminant concentrations to the West Branch Perkiomen Creek should be discussed and identified in the FFS.

We concur and will address continued operation of Well #3 in the discussion for this alternative in the FFS Workplan.

8. Page 4, Detailed Analysis of Alternatives. The detailed analysis of Alternative 1 should include discussions regarding future residential and/or industrial growth within the Bally PWS service area. For example, will the new well have similar pumping capacity and yield compared to the existing well such that future growth (if proposed by the Borough) is not impacted? The criteria (e.g. yield, quality, operating requirements and costs, etc.) for the new well should be identified and agreed upon by EPA, AHI, and the Borough prior to selection of a new well location. These criteria should be included in the detailed analysis of any proposed new well locations.

We concur that the criteria for well yield and water quality need to be addressed in the FFS Workplan. Our understanding is that the Borough is requesting a yield of 350 gpm and water quality that meets the DEP standards. We are evaluating the well yield request and will address in the FFS Workplan.

9. Page 5, Installation of New Municipal Supply Well. Please include in further detail how the aquifer pump test at the new municipal supply well will evaluate the potential impact to the ground water contamination plume associated with the Bally Ground Water Contamination Superfund Site.

Detail on plume assessment, capture zone as defined by an aquifer pumping test, and other information to be gained from the aquifer pumping test will be provided in the FFS Report.

10. Page 5, Installation of New Municipal Supply Well. Please include in detail what type of water quality analyses will be associated with the evaluation of a new municipal supply well. Include reference to Pennsylvania sampling and analysis requirements for new municipal supply wells. EPA anticipates that evaluation for the presence of 1,4-dioxane will be included in water quality analyses; please indicate this in the workplan.

Attached are the Pennsylvania Department of Environmental Protection (PADEP) New Source Sampling Requirements for Groundwater Sources for public water supply systems. This list includes the constituents that will be tested during analysis of groundwater samples from the supply well location. 1,4-dioxane will be analyzed in addition to this list of constituents. This list will be referenced in the FFS Workplan, and the FFS Workplan will note that 1,4-dioxane will be added to the list of analytes.

11. Page 6, Continued Operation of Existing Groundwater Treatment System with Discharge to West Branch Perkiomen Creek. Please discuss the role that the Berks County Conservation District will play in review of the proposed NPDES permit, and other permits that may be associated with a preferred alternative.

ARCADIS anticipates that the amount of earth disturbance associated with construction of a water supply pipeline and a new pipeline for the existing treatment system effluent will require review and approval of a Soil Erosion and Sediment (E&S) Control Plan by the Berks County Conservation District (BCCD). These construction activities also may require a Construction NPDES permit from the BCCD. Water Encroachment and Wetlands General Permits may be required for water supply pipeline and discharge pipeline construction. While the Water Encroachment and Wetlands General Permits are PADEP permits, PADEP has delegated review of these General Permits to the BCCD.

12. Page 6, Continued Operation of Existing Groundwater Treatment System with Discharge to West Branch Perkiomen Creek. The EPA Biological Technical Assistance Group (BTAG) realizes that the level of detail at this stage in development of the FFS is limited. However, the work plan should acknowledge that an evaluation of the potential ecological impacts of any discharge of the ground water to surface water will be necessary (i.e., screening level ecological risk assessment). As the discharge location will depend on the

alternative, it may be most effective to evaluate the risk once the preferred alternative is identified. It should be recognized that this evaluation may ultimately need to include toxicity testing of the effluent and a biological assessment of the West Branch Perkiomen Creek to establish baseline conditions for future monitoring activities.

The FFS Workplan will provide a discussion on the evaluation of the potential ecological impacts (or lack thereof) of discharge of treatment system effluent to surface water.

Note that the range of 1,4-dioxane concentrations typically observed in the effluent (< 0.045 mg/L) is well below the level of concern for ecological receptors. The Final Acute Value (FAV) and Final Chronic Value (FCV) for 1,4-dioxane are 390 and 22 mg/L, respectively. Fish and other aquatic organisms continuously exposed to 1,4-dioxane at 22 mg/l will not experience any mortality, developmental or reproductive effects. A report describing acute and chronic toxicity of undiluted effluent from the existing Municipal Well No. 3 treatment system showed no observable effect on survival or reproduction of Ceriodaphnia dubia or fathead minnows (CEC, 1994). Both species survived and reproduced in the undiluted effluent sample. A calculated Log Bioconcentration Factor was determined to be -0.44. 1,4-Dioxane is not expected to bioconcentrate in fish and other aquatic organisms (Hansch et al, 1985; Howard 1990). Ecological risks are not expected for wildlife feeding on fish and other aquatic organisms exposed to 1,4-dioxane in the treatment system effluent.

Therefore, the effluent is not expected to pose any threat to aquatic organisms in the receiving stream, and toxicity testing or biological community surveys are unnecessary.

References:

Pre-Design Report, 1994, Bally Groundwater Contamination Site, Civil & Environmental Consultants, Inc. (CEC).

Hansch, C., A.J. Leo, 1985. Medchem Project Issue No. 26 Claremont, CA: Pomona College.

Howard, P. H. 1990. Handbook of Fate and Exposure Data for Organic Chemicals. Chelsea, Michigan: Lewis Publishers.

13. Page 6, Continued Operation of Existing Municipal Well No. 3 Groundwater Treatment System with Additional Treatment for 1,4-Dioxane.
The workplan indicates that an alternative being considered is continued usage of Municipal Well No. 3 as the potable water source for the Borough of Bally,

with additional treatment added for the contaminant 1,4-dioxane. In this event, a modification of the Water Supply Permit will also be required, to reflect the change to the water treatment system associated with Municipal Well No. 3, and the associated public water system.

We concur and will include this in the FFS Workplan.

14. Attachment 1, page 1. Please discuss how proximity to the existing Bally Public Water Supply distribution system could represent a constraint.

Potential supply well locations that are relatively close to the existing Bally Public Water System (PWS) pipe network have a lower potential for physical or administrative constraints such as physical obstructions or difficulties in obtaining access to public rights-of-way. Likewise, locations that are closer to the Bally PWS would have a lower cost associated with construction of the pipeline to connect the new well to the existing pipe network. Potential well locations that are located relatively far from the Bally PWS have a greater potential for physical or administrative constraints, as well as greater pipeline costs. For these reasons, connection to the Bally PWS could be more difficult or even infeasible for potential well locations that are relatively far from the Bally PWS.

15. Attachment 1, page 1. Please discuss the conclusions that the PRP will reach regarding changes in common water quality parameters (nitrates, chlorides, hardness, TDS).

Changes in these water quality parameters can be an indicator of upgradient groundwater contamination. If historical and current groundwater quality data are available for a given location, data can be reviewed for changes in these parameters and potential upgradient groundwater contamination sources can be evaluated.

16. Attachment 1, page 1. Please include a review of the Site-related remedial investigation reports as part of your evaluation of "Water-quality considerations: groundwater contamination incidents and sources." Please review the conclusions reached in the report titled, "Hydrogeologic Investigation of the Bally Engineered Structures, Inc. facility, Bally, Pennsylvania – Phase II Report", dated October 27, 1986, prepared by Environmental Resources Management, Inc., prepared for Bally Engineered Structures. This report indicates that a new municipal supply well alternative was considered at that time at a location to the east of the Bally Engineered Structures facility, but the feasibility of that alternative was discounted, based upon the potential for ground water contamination plume expansion.

Review of Site-related remedial investigation and design reports is part of the evaluation of water quality considerations for a new water supply well. Discussion of this review will be provided in the FFS Report.

Note that the new municipal supply well location presented in the report referenced above was near the intersection of Pine Street and South Seventh Street within Bally Borough. That proposed well location was at least 2,500 feet cross-gradient of any well location presently under consideration. Also note that the groundwater plume size and concentrations have decreased dramatically in the 17 years since this report was written. This report also did not seem to include continued pumping of Municipal Well No. 3 in the consideration of the proposed supply well location, which is an important factor in the analysis of any new supply well location. Furthermore, the ensuing 17 years of site study and groundwater monitoring since that report was produced, and recently collected field data, have yielded a more thorough understanding of site conditions. This body of information allows a more accurate assessment of the potential for migration of Site constituents to a new supply well location.

17. Attachment 1, page 2. Please provide further information on water-level impacts, water-quality impacts, and how that may impact regulatory considerations.

During FFS Report preparation, ARCADIS will evaluate the potential for a supply well at a given location to impact water levels and/or water quality on nearby properties. If installation of a new municipal supply well is pursued, ARCADIS likely will conduct an aquifer pumping test on at least one property. One category of data obtained from such a test will include the effects of groundwater pumping on the groundwater surface elevation in the areas surrounding the test well. Water level data is important for determining whether water levels in wells on surrounding properties will be impacted by a new supply well. Another data set will include the analysis of a water sample collected at the end of the aquifer pumping test. This analytical data, analytical data for other samples obtained to date from the property, and analytical data collected from the Bally groundwater plume will be considered when assessing the potential for impacts to the quality of water that would be extracted from a new supply well on a given property. The water level and water quality information will be of interest to all of the involved stakeholders, including USEPA and PADEP, as the suitability of any given supply well location is considered.

18. Please include this comments letter and AHI responses to comments as an attachment to the workplan.

ARCADIS

Mr. Mitch Cron
12 March 2004

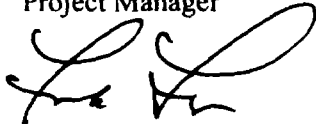
We concur with this comment and will incorporate the comment and response letters in the FFS Workplan as attachments.

We trust that these responses adequately address USEPA's comments. If you have any questions or further comments regarding these responses, please contact Michael Bedard at (267) 685-1821.

Sincerely,



Michael F. Bedard, P.E.
Project Manager



Frank Lenzo, P.E.
Project Director/Vice President

Attachment

Copies:

Roger Reinhart, USEPA
Asuquo Effiong, PADEP
Susan Werner, PADEP
Toni Hemerka, Borough of Bally
Ron Gahagan, American Household, Inc.

DEPARTMENT OF ENVIRONMENTAL PROTECTION
Bureau of Water Supply Management

Document Number: 383-3130-208

Title: Community and Nontransient Noncommunity Water Systems:
New Source Sampling Requirements for Groundwater Sources.

Effective Date: September 1, 1997

Authority: Pennsylvania's Safe Drinking Water Act (35 P.S. §721.1 et.
seq.) and regulations at 25 Pa. Code Chapter 109.

Policy: Department of Environmental Protection (DEP) staff will follow the guidance and procedures presented in this document to direct and support implementation of new source sampling activities under the drinking water management programs.

Purpose: The purpose of this document is to establish a rational and reasonable basis for staff decisions which will promote quality, timely and consistent service to the public and regulated community.

Applicability: This guidance will apply to sampling of new groundwater sources of supply for community and nontransient noncommunity water systems.

Disclaimer: This guidance and procedures outlined in this document are intended to supplement existing requirements. Nothing in this document shall affect more stringent regulatory requirements.

The guidance and procedures herein are not an adjudication or a regulation. There is no intent on the part of DEP to give this document that weight or deference. The guidance and procedures merely explain how and on what basis DEP will administer and implement its responsibilities with respect to new source sampling of groundwater sources. DEP reserves the discretion to deviate from the guidance and procedures in this document if circumstances warrant.

Page Length: 3 pages

Location: Volume 22, Tab 11B

Definitions: See 25 Pa. Code Chapter 109

**DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WATER SUPPLY MANAGEMENT**

COMMUNITY AND NONTRANSIENT NONCOMMUNITY WATER SYSTEMS

**NEW SOURCE SAMPLING REQUIREMENTS
for
GROUNDWATER SOURCES**

The following lists the minimum new source sampling requirements. Except where noted otherwise, the public water supplier is responsible for collecting the samples of the new source for analysis by a DEP certified laboratory. The new source sampling requirements also pertain to transient noncommunity water systems for which a permit is required under § 109.503. The new source sampling requirements do not apply when the new source is finished water obtained from an existing permitted community water system unless DEP provides written notice that an evaluation is required. On a case-by-case basis, DEP may require monitoring of any other contaminant(s) as determined necessary to evaluate the potability of the source. It is recommended the public water supplier contact the appropriate DEP field office to obtain the specific new source sampling requirements.

VOLATILE ORGANIC CHEMICALS (VOCs):		
BENZENE CARBON TETRACHLORIDE o-DICHLOROBENZENE para-DICHLOROBENZENE 1,2-DICHLOROETHANE 1,1-DICHLOROETHYLENE cis-1,2-DICHLOROETHYLENE	trans-1,2-DICHLOROETHYLENE DICHLOROMETHANE 1,2-DICHLOROPROPANE ETHYLBENZENE MONOCHLOROBENZENE STYRENE TETRACHLOROETHYLENE	TOLUENE 1,2,4-TRICHLOROBENZENE 1,1,1-TRICHLOROETHANE 1,1,2-TRICHLOROETHANE TRICHLOROETHYLENE VINYL CHLORIDE (See NOTE) XYLENES (Total)
NOTE: Monitoring for VINYL CHLORIDE is only required when one or more of the following two-carbon compounds are detected:		
TRICHLOROETHYLENE TETRACHLOROETHYLENE	trans-1,2-DICHLOROETHYLENE cis-1,2-DICHLOROETHYLENE	1,2-DICHLOROETHANE 1,1-DICHLOROETHYLENE 1,1,1-TRICHLOROETHANE

INORGANIC CHEMICALS (IOCS):		
ANTIMONY ARSENIC ASBESTOS (See NOTE) BARIUM BERYLLIUM CADMIUM	CHROMIUM COPPER CYANIDE (Free) FLUORIDE LEAD MERCURY	NICKEL NITRATE (as Nitrogen) NITRITE (as Nitrogen) SELENIUM THALLIUM
NOTE: Monitoring for ASBESTOS is only required when DEP has reason to believe the source is vulnerable to asbestos contamination		

COMMUNITY AND NONTRANSIENT NONCOMMUNITY WATER SYSTEMS

NEW SOURCE SAMPLING REQUIREMENTS

for

GROUNDWATER SOURCES

(Continued)

SYNTHETIC ORGANIC CHEMICALS (SOCs):

Monitor for the following SOCs:

ALACHLOR
ATRAZINE
CHLORDANE
DIBROMOCHLOROPROPANE (DBCP)

ETHYLENE DIBROMIDE (EDB)
HEXACHLOROCYCLOPENTADIENE
LINDANE

METHOXYCHLOR
PCBs (See NOTE)
SIMAZINE

NOTE: Monitoring for PCBs is only required when there is a source of PCB contamination within 1000 feet of the new groundwater source.

Monitor for the following SOCs except those for which the source is not considered vulnerable based on a vulnerability assessment [§ 109.301(6)(v)] conducted by the water supplier and approved by DEP:

BENZO(a)PYRENE
CARBOFURAN
2,4-D
DI(2-ETHYLHEXYL) ADIPATE

DI(2-ETHYLHEXYL) PHTHALATE
ENDOTHALL
OXAMYL (Vydate)

PENTACHLOROPHENOL
PICLORAM
2,3,7, 8-TCDD (Dioxin) (See NOTE)

NOTE: Monitoring for Dioxin is only required when there is a source of Dioxin contamination within 1000 feet of the new groundwater source.

MICROBIOLOGICAL CONTAMINANTS:

TOTAL COLIFORM
CONCENTRATION

Three (3) separate samples obtained at 15-minute intervals immediately prior to the conclusion of the pump test.
For each Total Coliform positive sample, analyze the same or equivalent sample for Fecal Coliform concentration.

COMMUNITY AND NONTRANSIENT NONCOMMUNITY WATER SYSTEMS

NEW SOURCE SAMPLING REQUIREMENTS for GROUNDWATER SOURCES (Continued)

RADIONUCLIDES:	
GROSS ALPHA GROSS BETA	If the GROSS ALPHA exceeds 5 pCi/L, the same or equivalent sample must be analyzed for Radium226 and Radium228.

SECONDARY CONTAMINANTS AND OTHERS:		
ALKALINITY ALUMINUM CHLORIDE COLOR FOAMING AGENTS	HARDNESS IRON MANGANESE pH (See NOTE) SILVER	SULFATE TEMPERATURE (See NOTE) TOTAL DISSOLVED SOLIDS ZINC
NOTE: Temperature and pH measurements may be obtained in the field.		
MICROSCOPIC PARTICULATE ANALYSIS (MPA)	Applicable only to community water systems. MPA sampling and analysis is conducted by DEP at those new groundwater sources which fall within the criteria of the <i>Surface Water Identification Protocol</i> .	

**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
1650 Arch Street
Philadelphia, Pennsylvania 19103-2029**

April 21, 2004

**Mr. Ron Gahagan
American Household Inc.
2381 Executive Center Drive
Boca Raton, Florida 33431**

**RE: BALLY GROUND WATER CONTAMINATION SUPERFUND SITE
FOCUSED FEASIBILITY STUDY WORKPLAN**

Mr. Gahagan,

The United States Environmental Protection Agency (EPA) is in receipt of the Focused Feasibility Study Workplan ("workplan"), dated December 1, 2003, provided by American Household Inc. (AHI). This workplan was prepared by Arcadis G&M, Inc. (Arcadis), on behalf of AHI, to address 1,4-dioxane in the ground water at the Bally Ground Water Contamination Superfund Site ("the Site").

EPA is also in receipt of the March 12, 2004 response-to-comments letter prepared by Arcadis, on behalf of AHI, that addresses EPA's comments regarding the workplan.

The following comments/responses correlate with the numbered comments included in the EPA comments letter pertaining to the workplan, dated February 26, 2004.

1. The AHI response is satisfactory.
2. The AHI response is satisfactory.
3. The AHI response is satisfactory.
4. General Comment – System Redundancy. Resolution of this issue is pending, but does not preclude approval of the workplan.
5. General Comment – Warranty period. Resolution of this issue is pending, but does not preclude approval of the workplan.
6. Page 2, Purpose and Scope of FFS Work Plan. The intended use of the data should be identified and evaluated to determine if validated or non-validated data can be used. Data to be used for risk assessments or significant decision making should be

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validated according to EPA guidelines. The summary of recent monitoring data should identify any trends, or impacts due to seasonal effects or other variables.

With respect to trends, are Site-related contaminant concentrations decreasing, increasing, or remaining at the same level?

With respect to seasonal impacts, do Site-related contaminant concentrations appear seasonally influenced; for example, lower concentrations during dry periods and higher concentrations during wet periods that might indicate that contamination is present at a certain depth?

Any other variables in the sampling or data analysis that may have impacted the data should also be identified in the proposed summary. This might include identifying if certain sampling rounds were collected in a manner different from other rounds; if different analytical methods were used for a particular parameter; or any other significant items that should be noted when the data is to be used for decision making.

7. Page 2, Purpose and Scope of FFS Work Plan. The AHI response is satisfactory. However, the discussion of continued operation of Municipal Well No. 3 can be addressed in the focused feasibility study, rather than in the workplan.

8. Page 4, Detailed Analysis of Alternatives. EPA has the following comments regarding AHI's response:

A. Arcadis indicates in the March 12, 2004 response-to-comments letter that *"Our understanding is that the Borough is requesting a yield of 350 gpm and water quality that meets the DEP standards."* Please clarify "DEP standards" to include Pennsylvania Department of Environmental Protection (PADEP) Maximum Contaminant Levels for Primary and Secondary Contaminants (http://www.dep.state.pa.us/dep/deputate/watermgt/WSM/WSM_DWM/PA-MCLs.pdf).

B. Please note that the PADEP does not have a maximum contaminant level for 1,4-dioxane. Remediation goals for 1,4-dioxane in the Bally water system are discussed in the Administrative Order on Consent for the Site, dated September 30, 2003.

C. The feasibility of the 350 gallons per minute well yield from a potential new municipal well can be addressed in the focused feasibility study, rather than the workplan.

9. The AHI response is satisfactory.

10. The AHI response is satisfactory.

11. The AHI response is satisfactory.

12. Page 6, Continued Operation of Existing Groundwater Treatment System with Discharge to West Branch Perkiomen Creek. The AHI response is satisfactory. However, please provide the data source for the Final Acute Value and Final Chronic Value for 1,4-dioxane that were referenced in the March 12, 2004 response-to-comments

letter. The data source of these values should be referenced appropriately in the focused feasibility study.

13. The AHI response is satisfactory.
14. The AHI response is satisfactory.
15. The AHI response is satisfactory.
16. The AHI response is satisfactory.
17. The AHI response is satisfactory.
18. The AHI response is satisfactory.

19. General Comment - Potential impact of future competing wells. The following concern was raised during the April 7, 2004 field meeting at the Shuhler potential well site ("Shuhler site") that warrants discussion in the focused feasibility study.

The focused feasibility study should discuss what impact future wells constructed near the Shuhler site may have on a municipal well constructed at that site. For example, could a municipal well at the Shuhler site and other potential wells constructed in the vicinity of that site have a cumulative impact on the extent (areal and vertical) of the ground water contamination plume associated with the Bally Ground Water Contamination Superfund Site? Also, could other potential wells "compete" with a municipal well at the Shuhler site and limit the quantity of water available to the Borough of Bally ("the Borough")?

The Borough has an ordinance (#250) that allows the Borough to control the construction of wells within the Borough using a permitting process. A section of the ordinance is included:

The Borough Engineer shall review all applications for private wells, and the Borough may use all available expertise, both public and private, in evaluating the suitability of a proposed well in meeting the Borough's interest of protecting the health of its residents and the integrity of its public water supply sources.

EPA is concerned that such regulatory control may not be present at the Shuhler site, as the site lies outside of the Borough, in Washington Township. Please discuss in the focused feasibility study how development of water resources in the vicinity of a potential municipal well at the Shuhler site could be controlled, in order to disallow the Borough's water source from being compromised by competing wells, both in terms of water quantity and quality. Also, please discuss what roles (if any) the Delaware River Basin Commission and Washington Township municipality may play in this process.

Please contact me at (215) 814-3286 if you wish to further discuss any of the above comments. Please provide me with an updated version of the Focused Feasibility Study workplan as soon as possible for final review and approval.

Thanks for your cooperation in resolving this matter.

Sincerely,

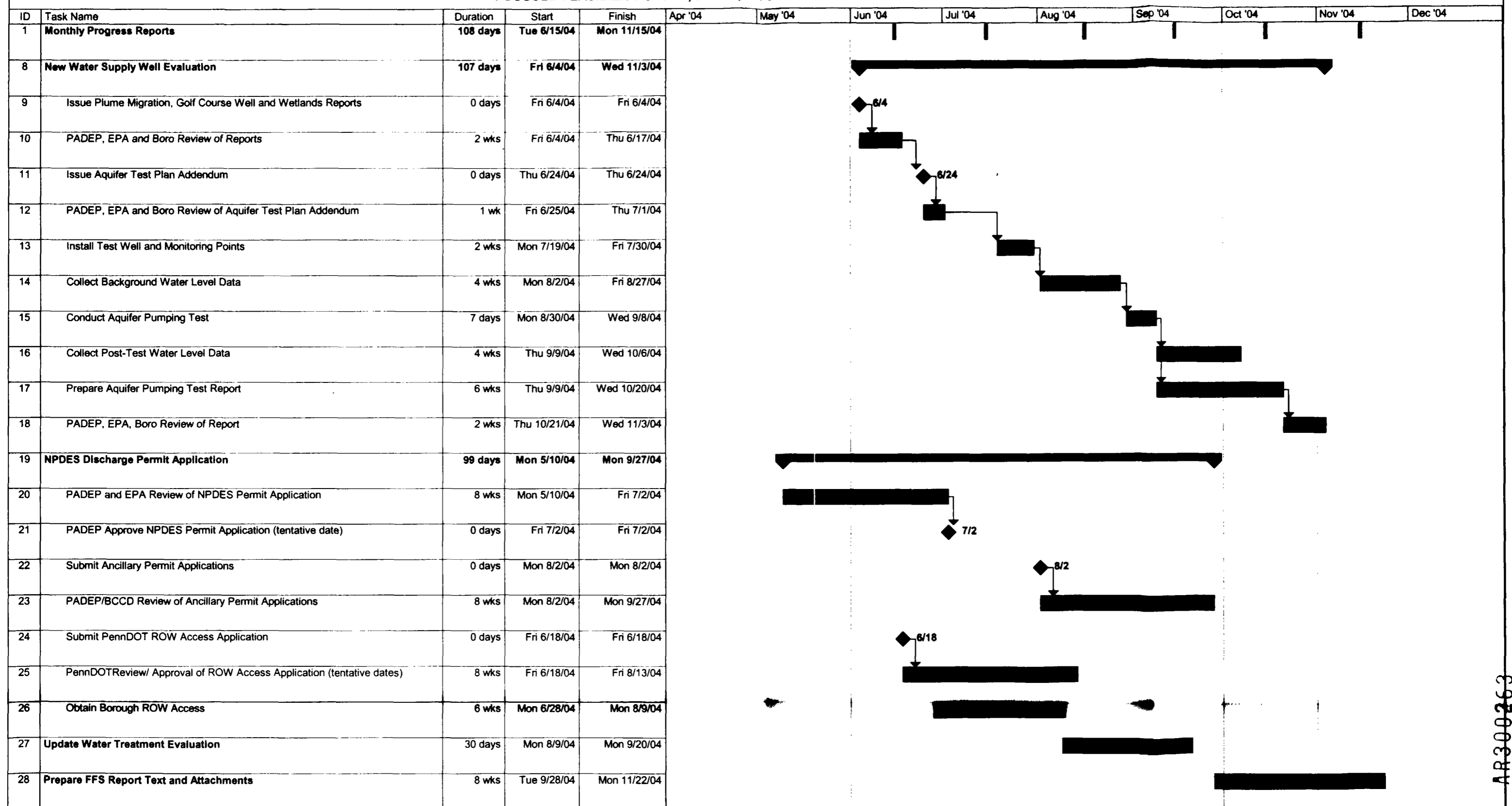


Mitch Cron
Remedial Project Manager

Cc: Ms. Toni Hemerka, Borough of Bally
Mr. Mike Bedard, Arcadis
Mr. Asuquo Effiong, PADEP
Ms. Sue Werner, PADEP
Mr. Roger Reinhardt, EPA

FILE
2004

**ATTACHMENT 3
FIELD ACTIVITIES AND DELIVERABLES SCHEDULE
FOCUSED FEASIBILITY STUDY, BALLY, PA GROUNDWATER CONTAMINATION SITE**



Project: FFS Work Plan Schedule
Date: Thu 5/20/04

Task
Split

Progress
Milestone

Summary
Project Summary

External Tasks
External Milestone

Deadline

